ORIGINAL

Before the
Federal Communications Commissions
Washington, D.C. 20554

In the Matter of	)	
	)	
Revision of the Commission's Rules	)	CC Docket No. 94-102
to Ensure Compatibility with	)	
Enhanced 911 Emergency Calling Systems	)	

REPLY COMMENTS OF KSI INC.

KSI Inc. ("KSI") hereby submits this reply to the Additional Comments regarding the February 13, 1996, ex parte presentation by the Cellular Telecommunications Industry Association ("CTIA"), National Emergency Number Association ("NENA"), Association of Public Safety Communications Officials ("APCO"), and National Association of State Nine One One Administrators ("NASNA") entitled "Public Safety-Wireless Industry Consensus: Wireless Compatibility Issues, CC Docket No. 94-102" ("Consensus Agreement") in the wireless Enhanced 911 ("E911") rule making proceeding.[1] Of the 18 Additional Comments filed, almost all support the goals set forth in the NPRM and the Consensus Agreement. KSI, in particular, replies to certain comments made by commercial mobile radio service ("CMRS") providers such as GTE Mobilnet and Southwestern Bell Mobile Systems, Inc. ("SBMS") regarding the availability, reliability, and flexibility of location technologies. KSI also notes that some of the concerns raised by rural cellular carriers can be addressed by various technological approaches or alternatively

[1] Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, Notice of Proposed Rule Making, 59 Fed. Reg. 54878 (1994) ("NPRM").

by relaxing the Phase II accuracy requirements set forth in the Consensus Agreement. Finally, KSI is encouraged by the responses of several commercial mobile radio service ("CMRS") providers who seem willing and able to implement wireless E911 service within the proposed time frames.

A. The Commission Has Consistently Acknowledged that Location Technology Is Currently Available, and It Should Reject Arguments Seeking to Postpone the Five-Year Period Set Forth in Phase II of the Consensus Agreement and the NPRM.

Over a year ago, the Commission released a Report and Order in PR Docket 93-61 regarding Location and Monitoring Systems which explicitly acknowledged the development and proliferation of location technologies.[2] In that proceeding, many commenters made the same arguments[3] that can be heard from GTE Mobilnet and others[4] in this docket: it is premature to adopt permanent rules because the technologies are new and that additional time is needed to study the relative merits of various The Commission correctly dismissed such arguments stating that location technologies had been developed, that delay would create further uncertainty, and that permanent rules would provide opportunities for new entrants into location and monitoring businesses.[5] Far from adopting "a rigid, 1960s-era regulatory approach,"[6] the Commission has

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[2] In the Matter of Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, PR Docket No. 93-61, FCC 95-41 (released Feb. 6, 1995).

[3] Id. at ¶ 15.

[4] Comments of GTE Mobilnet Incorporated at 4.

[5] Id. at ¶ 16.

[6] US West's Supplemental Comments at 2. See also Comments of GTE Mobilnet Incorporated at 4-5.

proposed, and the Consensus Agreement supports, a performance objective that reserves to the market the judgment as to which technologies will succeed in providing wireless E911 service. KSI strongly believes that, given the current availability of location technologies, five years is more than sufficient for CMRS providers to offer fully operational E911 service and urges the Commission to maintain this schedule. A number of commenters also believe that a five-year period is reasonable.[7]

KSI disagrees with the statement of SBMS and others that all location technologies being developed determine the location at call origination and that any regulations need to be written with this in mind.[8] KSI has repeatedly demonstrated with actual field trial data in its Comments, Reply Comments, ex parte filings, and its most recently filed Additional Comments[9] that its Direction Finding Localization System ("DFLS") technology can determine location at call origination on the digital control channel and can also passively track a caller's location, whether stationary or in motion, through handoffs to successive voice channels. DFLS also has the ability to tune to a designated voice channel and institute and maintain location tracking.

Moreover, the ability to track a caller's location throughout the duration of the call, in

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[7] Additional Comments of Nextel Communications, Inc. at 5 ("Five years appears to be a reasonable time frame for implementation . . . ."); Comments of Motorola, Inc. at 3 (". . . Motorola believes that five years is a facially reasonable timeframe."); Additional Comments of Southwestern Bell Mobile Systems, Inc. at 5; Comments of Concepts to Operations, Inc. at 2 (". . . the Wireless Industry must have functioning systems in place within 5 years . . . .")(emphasis in original); Comments of the Ad Hoc Alliance for Public Access to 911 at 16.

[8] Additional Comments of Southwestern Bell Mobile Systems, Inc. at 5.

[9] Comments of KSI Inc. filed January 9, 1995; Reply Comments of KSI Inc. filed March 17, 1995; Ex Parte submission of KSI Inc. filed July 12, 1995; Ex Parte submission of KSI Inc filed January 30, 1996; Additional Comments of KSI Inc. filed March 4, 1996.

addition to being technically feasible, should be required as a policy matter. KSI has on numerous occasions in this docket explained the need for location tracking. Other commenters have expressed similar concerns.[10] Accordingly, the Commission's rules in this regard should require Automatic Location Identification ("ALI") to provide a caller's location initially at the time of call origination and subsequently over the duration of the call.

B. Automatic Location Identification ("ALI") Accuracy Requirements Should Be Mandated in Rural Areas.

The Ad Hoc Rural Cellular Coalition ("RCC") avers that ALI should not be required in rural areas because it is "impractical" and "totally unnecessary" in a rural environment.[11] Similarly, the Rural Cellular Association ("RCA") states that for rural areas, the Commission should "exempt rural systems from any mandated E-911 requirements."[12] These statements are at odds with findings made by the Federal Highway Administration which document that 60 percent of automotive fatalities occur in rural areas and that the longer response times for emergency services are often due to imprecise location information.[13]

Both RCC and RCA support their conclusions by stating that triangulation techniques will

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[10] See, e.g., Comments of Concept to Operations at 2-3 ("A wireless ALI system should be capable of providing continuous latitude/longitude information as a caller transverses an area. This need could result from a call from a woman being stalked in her vehicle, a motorist following a drunk driver, or a person on foot following a crime suspect . . . ").

[11] Comments of the Ad Hoc Rural Cellular Coalition on the "Consensus Agreement" Between CTIA and Public Safety Groups ("RCC Comments") at 4.

[12] Comments of the Rural Cellular Association ("RCA Comments") at 5.

[13] Proceedings of the Rural IVHS National Conference (September 1994) at 75-76.

not work in many rural areas.[14] First, while RCC is correct that triangulation is a technique used to locate a mobile handset, it and GTE Mobilnet are incorrect in stating that triangulation measures distances or the times a transmission signal takes to reach three separate points (i.e., cell sites). Trilateration, on the other hand, uses three or more receiving sites to measure and calculate distance-related differences in the signal's time of arrival. DFLS employs triangulation to measure the signal's directional angle of arrival at two or more sites and calculates the position of the mobile handset. Second, KSI's Enhanced Direction Finding Localization System ("EDFS") can locate a mobile handset by exploiting collateral information, together with an angle of arrival from only one cell site.[15] Thus, KSI offers two methods for addressing the concerns raised by RCC and RCA regarding the practicality of location technology in a rural environment.

Notwithstanding this demonstrated ability to satisfy the 125 meter Root Mean Square requirement set forth in the Consensus Agreement in rural areas, KSI notes that it presented an alternative approach before NENA's Wireless Technical Issues Committee and CTIA on December 19, 1995, prior to the adoption of the Consensus Agreement. As set forth in Appendix A to these Reply Comments, KSI proposed that mobile station location information consist of a two-dimensional position, together with a measure of the 90 percent confidence region for that position, where the area of the confidence region may be characterized as a circle with radius less than 125 meters in urban centers and less than 1000 meters in rural environments.[16]

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[14] RCC Comments at 4; RCA Comments at 3-4.

[15] See Comments of KSI Inc., App. B; Ex Parte submission of KSI Inc. filed July 12, 1995.

C. KSI Is Encouraged By and Supports the Stated Intentions of Several CMRS Providers to Implement Wireless E911 Service.

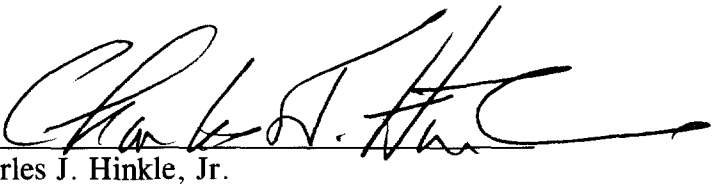
KSI is pleased that most of the CMRS providers who filed Additional Comments demonstrated support for the deployment of E911 service in a timely manner. KSI looks forward to working with these carriers to ensure that a reliable service is made available to mobile radio users as quickly as possible. KSI also notes the efforts being undertaken by CMRS providers to begin testing and implementing of location technologies will mitigate the concerns stated by the Personal Communications Industry Association ("PCIA") that ALI technology has not yet been tested with all air interfaces. PCIA's concerns on this issue should evaporate when the Commission adopts location requirements and CMRS providers move to implement E911 service on a fully operational basis by, among other things, testing technologies for use with various interfaces.

[16] When this information is correlated with collateral information such as road or highway locations, location may be defined as a 1000 meter section of highway, which in a rural location is far superior to no location information at all.

CONCLUSION

KSI respectfully urges the Commission to adopt the NPRM consistent with the Consensus Agreement and the modifications suggested by KSI in its Comments, Reply Comments, Additional Comments, and these Reply Comments.

Respectfully submitted,
KSI Inc.

By: 

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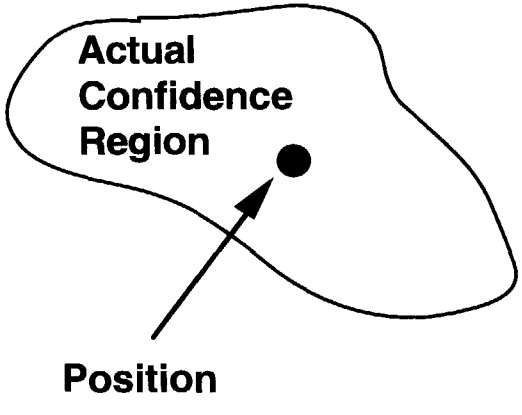
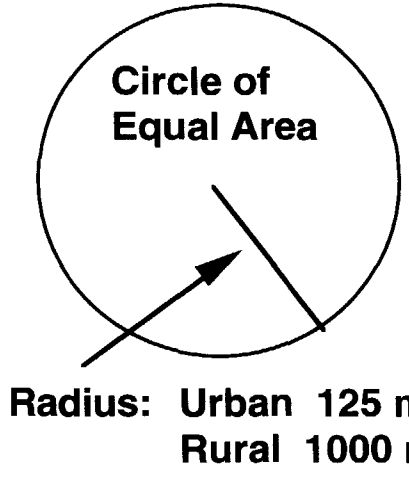
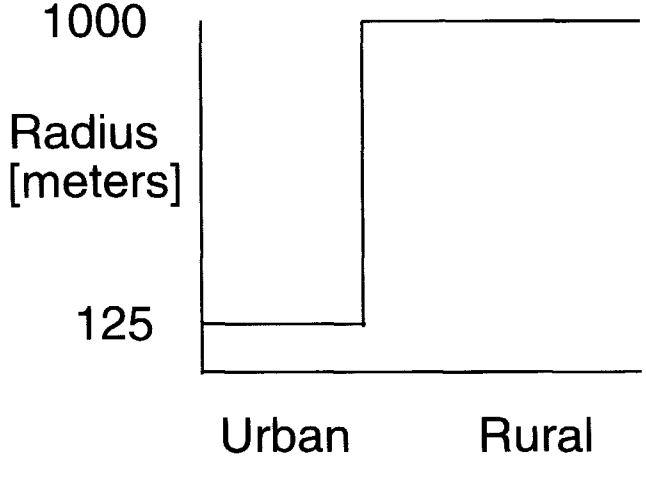
(Location Information:)

.. the mobile station location information shall consist of a *two-dimensional position*, together with a measure of the 90% *confidence region* for that position, where the area of the confidence region may be characterized as a circle with radius less than 125 meters in urban centers and less than 1000 meters in rural environments.







CERTIFICATE OF SERVICE

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